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Federal-State Cooperative Snow Surveys and Water Supply Forecasts for WYOMING

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SOIL CONSERVATION SERVICE
UNITED STATES DEPARTMENT OF AGRICULTURE
AND
STATE ENGINEER OF WYOMING

Data included in this report were obtained by the agencies named above in cooperation with the U. S. Forest Service, Bureau of Reclamation, National Park Service, and other Federal, State and local organizations.

AS OF

FEBRUARY 1, 1955

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

TO RECIPIENTS OF COOPERATIVE SNOW SURVEY
AND WATER SUPPLY FORECAST REPORTS:

Forecasts by U. S. Weather Bureau of total annual streamflow October-September, inclusive, at more than 300 gaging stations are issued monthly January through May in the publication WATER SUPPLY FORECASTS FOR THE WESTERN UNITED STATES.

Weather Bureau forecasts of runoff presented in that bulletin are computed from procedures based on mathematical analysis of the relation between precipitation and runoff.

The Weather Bureau bulletins may be secured by writing to:

Hydrblogist in Charge
River Forecast Center
U. S. Weather Bureau
712 Federal Office Building
Kansas City 6, Missouri

For current information on local river and flood conditions, reference should be made to the appropriate River District Office, listed below:

Meteorologist in Charge.....Green River and
Weather Bureau Airport Station tributaries
Box 517
Grand Junction, Colo.

Meteorologist in Charge.....Snake River and
Weather Bureau Airport Station tributaries
Box 1718
Boise, Idaho

Meteorologist in Charge.....Yellowstone River
Weather Bureau Airport Station and tributaries
Box 1338
Billings, Montana

Climatologist.....North Platte River
Weather Bureau Office and tributaries
Box 1079
Denver, 1. Colo.

State of Wyoming

FEDERAL-STATE COOPERATIVE
SNOW SURVEYS AND WATER FORECASTS
FOR
WYOMING

Issued
February 1, 1955

Report Prepared
by
George W. Peak
Snow Survey Leader

Soil Conservation Service
and
State of Wyoming

345 East 2nd Street
P. O. Box 699
Casper, Wyoming

Issued by

B. H. Hopkins
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Soil Conservation Service

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State Engineer of Wyoming
Cheyenne, Wyoming

WYOMING

FOR

[illegible]

Issued
February 1, 1935

Report Prepared
by
George W. Pierce
Snow Survey Leader

Soil Conservation Service
and
State of Wyoming

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State Conservationist

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E. C. Bishop
State Engineer of Wyoming

PRELIMINARY WATER SUPPLY OUTLOOK
FOR
WYOMING
February 1, 1955

The February 1 accumulation of water in the Wyoming snow pack is ranging from 40 per cent of normal in the Wind River network to 76 per cent in the North Platte Basin.

The water supply prospects for this state are rather poor. The soil throughout Wyoming entered the winter with considerably less moisture than is normally had, however, the soil deficit was not as low as the previous year. The figures given here are in percentages of the average of past years of record for February 1 snow surveys, and will improve if normal conditions exist from now on.

The Snake River Basin, west of the divide, and Yellowstone Park are 60 per cent of the February 1 average. Storage in Jackson Lake is about 80 per cent of normal.

The Wind River Basin above Boysen is 40 per cent of that which is expected by the first of February. In most cases the snow surveys were made just ahead of the storm that crossed the state on February 3 and 4, so the picture would be a little improved if this data were included.

(Cont'd)

The western areas of the Big Horn drainage below Boysen Reservoir have less than half the normal accumulation for this time of year. The west flank of the Big Horn mountains is somewhat improved, with a few snow courses up to 72 per cent.

The Tongue and Powder River Basins are also considerably below normal, indicating a runoff of 50 per cent and 60 per cent of average, even though normal conditions exist until the runoff occurs.

The North Platte and Laramie River Watersheds are showing a great deal of improvement over the existing conditions on January 1. These basins have an accumulation of 75 per cent of the average February 1 snow pack, however, the Sweetwater country is down to 53 per cent.

* * * * * * * * * * * *

COMPARISON OF SNOW COVER WITH THAT OF PREVIOUS YEARS
Summary of Snow Survey Data by Watersheds as of February 1, 1955

BASIN	NO. OF COURSES AVERAGED	YEARS OF RECORD	1955 SNOW WATER EXPRESSED AS PERCENTAGE OF		
			1954	1953	Average
Snake River Basin Above Jackson Lake	11	8-35	53%	52%	61%
Jackson Lake to Heise	14	4-20	58%	57%	60%
Upper Yellowstone In Yellowstone Park	6	4-13	53%	68%	56%
Madison River In Yellowstone Park	2	2-17	57%	75%	64%
Lower Yellowstone - Shoshone River	2	6-8	39%	48%	36%
Lower Yellowstone - Wind River	14	5-19	44%	45%	39%
Lower Yellowstone - Popo Agie River	6	6-14	44%	55%	43%
Lower Yellowstone - Owl Creek	2	6	42%	59%	51%
Lower Yellowstone - Greybull River	1	2	20%	40%	27%
Lower Yellowstone - Tongue River	2	4-5	57%	87%	72%
Lower Yellowstone - Shell Creek	1	5	48%	91%	74%
Lower Yellowstone - Clear Creek On The Powder River	1	4	93%	81%	57%
North Platte Above Seminoe Reservoir	14	3-19	110%	103%	76%
North Platte - Sweetwater River	2	13	49%	59%	53%
Laramie River Basin	9	6-18	115%	80%	75%
Pole Mountain	1	18	161%	121%	100%
North Laramie Mountains	2	5-6	112%	82%	86%
Missouri - Cheyenne River	1	11	115%	94%	102%

WYOMING SNOW SURVEYS, FEBRUARY 1, 1955

DRAINAGE BASIN and SNOW COURSE	State	Elev.	SNOW COVER MEASUREMENTS 1955 Date of Survey	Snow Depth (In.)	Water Content (In.)	Past Record Water Content (In.) 1954	1953	Ave.	Years of Record
SNAKE RIVER BASIN ABOVE JACKSON LAKE **									
Arizona	Wyo.	6850	1/31	29	7.3	12.9	13.8	11.3	35
Astor Creek	Wyo.	7700	1/30	40	10.7	23.4	24.5	19.0	35
Base Camp*	Wyo.	6900	2/1	29	6.7	14.8	14.8	13.5	8
Coulter Creek	Wyo.	7600	1/29	37	10.1	16.8	17.5	14.2	35
Glade Creek	Wyo.	7200	1/30	36	9.3	15.3	16.8	14.6	35
Huckleberry Divide	Wyo.	7300	1/31	34	8.5	12.6	15.1	12.4	35
Lewis Lake Divide	Wyo.	7900	1/30	53	16.6	31.9	31.2	26.3	35
Moran	Wyo.	6800	2/1	24	4.7	10.4	10.6	7.7	35
Moran Bay	Wyo.	6800	1/31	31	7.3	14.5	16.7	12.9	35
Snake River Station	Wyo.	6780	1/31	34	8.9	14.4	14.7	12.7	35
Thumb Divide	Wyo.	7900	1/30	35	8.2	17.3	14.8	17.6	8
JACKSON LAKE TO HEISE									
Afton Ranger Station	Wyo.	6200	1/31	14	2.8	3.3	3.4	3.9	19
Base Camp **	Wyo.	6900	2/1	29	6.7	14.8	14.8	13.5	8
Blackrock	Wyo.	8600	1/31	36	7.8	15.7	14.2	14.3	19
Blind Bull Summit	Wyo.	8750							
Bryan Flat	Wyo.	6250	1/31	15	3.0	7.7	8.0	6.7	19
CCC Camp	Wyo.	7500	1/28	24	5.0	7.9	8.8	7.7	19
Cottonwood Lake	Wyo.	7500							
Deadman Ranch	Wyo.	6534							
East Rim Divide	Wyo.	7950	1/31	17	3.5	--	--	--	--
Four Mile Meadows	Wyo.	7770	1/31	25	5.3	9.6	8.8	8.8	20
Grossy Lake*	Wyo.	7265	1/30	59	16.4	22.4	25.6	20.2	15
Greys Boundary	Wyo.	5800	1/31	23	5.5	9.0	9.9	7.6	19
Gros Ventre Summit	Wyo.	8750							
Grover Park Divide	Wyo.	7500	1/31	21	4.9	6.6	8.8	7.6	19
Poison Meadows	Wyo.	8500							
Salt River Summit	Wyo.	7900	1/28	25	5.1	13.4	10.8	12.3	6
Snow King Mountain	Wyo.	7600	1/31	20	4.0	7.1	NR	8.6	4
Teton Pass No. 2	Wyo.	8500	1/31	52	15.6	20.7	24.9	24.6	10
Togwotee Pass	Wyo.	9600	1/31	47	11.6	21.1	18.7	19.9	19
Turpin Meadows	Wyo.	6930	1/31	21	3.9	7.9	8.4	7.7	19
Yellow Jacket	Wyo.	7675							

* Adjacent Basin

** Provisional Average for Snake River Stations

WYOMING SNOW SURVEYS, FEBRUARY 1, 1955

DRAINAGE BASIN and SNOW COURSE	State	Elev.	SNOW COVER MEASUREMENTS 1955 Date of Survey	Snow Depth (In.)	Water Content (In.)	Past Record Water Content (In.) 1954	1953	Aver.	Years of Record
UPPER YELLOWSTONE IN YELLOWSTONE PARK									
Canyon	Wyo.	7750	1/30	34	7.8	11.5	8.9	10.4	9
Cooke City	Mont.	7400	2/2	20	3.4	8.2	5.7	6.1	8
Crevice Mountain	Mont.	8400							
Lake Camp	Wyo.	7850	2/1	21	3.2	7.4	5.7	7.5	10
Lupine Creek	Wyo.	7300	1/31	27	6.1	7.8	5.3	6.5	13
Sylvan Pass	Wyo.	7100	2/2	27	4.1	9.5	7.8	10.1	8
Thumb Divide	Wyo.	7900	1/30	35	8.2	17.3	14.8	17.6	4
MADISON RIVER IN YELLOWSTONE PARK									
Norris Basin	Wyo.	7500	2/1	23	4.5	8.9	6.3	7.6	2
West Yellowstone	Mont.	6700	2/2	23	5.3	8.3	6.8	7.8	17
LOWER YELLOWSTONE - SHOSHONE RIVER									
East Entrance	Wyo.	7000	2/2	21	2.9	8.3	6.7	9.1	6
Sylvan Pass	Wyo.	7100	2/2	26	4.1	9.5	7.8	10.1	8
LOWER YELLOWSTONE - WIND RIVER									
Brooks Lake	Wyo.	9200	1/24	41	9.7	15.3	15.6	16.9	14
Burroughs Creek	Wyo.	8800	1/26	19	4.4	11.0	11.5	12.5	6
Dinwoody	Wyo.	10000	1/22	15	2.8	6.5	7.1	9.7	6
Dry Creek	Wyo.	9500	1/22	8	1.7	3.5	3.7	5.0	6
DuNoir	Wyo.	8750	1/25	10	1.9	5.5	5.2	6.5	13
Geyser Creek	Wyo.	8500	1/25	10	1.4	5.5	4.9	6.3	6
Hobbs Park	Wyo.	10000	1/30	19	4.5	12.3	8.9	13.5	6
Little Warm	Wyo.	9500	1/25	25	5.0	11.1	10.3	14.4	5
Mosquito R.S.	Wyo.	9500	1/30	11	2.0	5.3	4.8	6.4	11
St. Lawrence R.S.	Wyo.	9000	1/31	6	1.3	3.7	4.1	4.9	11
Sheridan R.S.	Wyo.	7500	1/24	14	2.2	5.1	6.5	5.7	13
T-Cross Ranch	Wyo.	8000	1/26	11	2.2	6.2	6.3	5.2	14
Togwotee Pass	Wyo.	9600	1/31	47	11.6	21.1	18.7	19.9	19
Trout Creek	Wyo.	8400	1/30	6	0.8	4.2	3.6	3.8	6

*Adjacent Basin

WYOMING SNOW SURVEYS, FEBRUARY 1, 1955

DRAINAGE BASIN and SNOW COURSE	STATE	Elev.	SNOW COVER MEASUREMENTS 1955 Date of Survey	Snow Depth (In.)	Water Content (In.)	Past Record Water Content (In.) 1954	1953	Aver.	Years of Record
LOWER YELLOWSTONE - POPO AGIE RIVER									
Blue Ridge	Wyo.	9500	2/1	14	3.9	8.8	6.4	8.1	14
Grannier Meadows*	Wyo.	9000	2/1	24	4.5	9.7	8.2	9.6	13
Hobbs Park	Wyo.	10000'	1/30	19	4.5	12.3	8.9	13.5	6
Mosquito R. S.	Wyo.	9500	1/30	11	2.0	5.3	4.8	6.4	11
Sawmill Glade	Wyo.	8500	2/1	11	2.2	4.7	4.2	5.0	13
South Pass	Wyo.	9000	2/1	22	5.5	10.6	8.8	9.4	13
LOWER YELLOWSTONE - OWL CREEK									
Beavers Mill	Wyo.	8900	2/4	21	3.8	6.4	5.3	5.5	6
Owl Creek	Wyo.	8700	2/4	11	1.2	5.4	3.2	4.3	6
LOWER YELLOWSTONE - GREYBULL RIVER									
Timber Creek	Wyo.	8800	2/1	5	0.9	--	--	--	--
Wood River	Wyo.	8000	1/31	6	1.0	4.9	2.5	3.7	2
LOWER YELLOWSTONE - TONGUE RIVER									
Big Goose	Wyo.	7700	1/29	11	1.6	1.9	2.0	2.3	4
Burgess R. S.	Wyo.	7900	1/28	24	4.7	--	--	--	1
Dome Lake	Wyo.	8800	1/28	19	3.1	6.4	3.4	4.2	5
LOWER YELLOWSTONE - SHELL CREEK									
Dome Lake*	Wyo.	8800	1/28	19	3.1	6.4	3.4	4.2	5
Ranger Creek	Wyo.	8800				--	--	--	--
LOWER YELLOWSTONE - CLEAR CREEK ON THE POWDER RIVER									
Soldier Park	Wyo.	8700	1/29	7	1.3	1.4	1.6	2.3	4
Sour Dough	Wyo.	8500				--	--	--	--

* Adjacent Basin

WYOMING SNOW SURVEYS, FEBRUARY 1, 1955

DRAINAGE BASIN and SNOW COURSE	STATE	Elev.	SNOW COVER MEASUREMENTS 1955 Date of Survey	Snow Depth (In.)	Water Content (In.)	Past Record Water Content (In.) 1954	1953	Aver.	Years of Record
NORTH PLATTE ABOVE SEMINOE RESERVOIR									
Albany*	Wyo.	9400	1/29	30	5.4	6.0	8.0	9.7	6
Bottle Creek	Wyo.	8200	1/26	30	6.2	6.9	6.6	8.2	17
Cameron Pass	Colo.	10300	2/5	33	9.7	8.9	8.5	11.9	16
Columbine Lodge	Colo.	9300	1/28	61	14.1	8.9	15.3	14.0	19
Fox Park*	Wyo.	9200	1/31	18	3.4	1.7	4.4	5.0	18
North Barrett Creek	Wyo.	9400	1/28	58	8.9	8.7	9.0	11.2	17
North Gate	Colo.	8500	1/31	16	2.3	2.0	2.5	3.6	5
North French Creek	Wyo.	10200	1/31	57	12.8	14.8	12.2	16.3	17
Old Battle	Wyo.	9800	1/26	61	13.5	12.5	13.7	18.4	17
Park View	Colo.	9200	1/31	20	3.3	3.8	5.3	6.9	17
Ryan Park	Wyo.	8400	1/31	34	6.4	4.4	4.2	6.5	17
Spring Creek	Wyo.	9000	1/28	280	7.0	5.6	--	10.9	4
Webber Spring	Wyo.	9000	1/26	38	8.1	7.8	8.2	10.4	17
Willow Creek Pass*	Colo.	9500	1/31	27	5.6	5.2	6.1	7.8	15
NORTH PLATTE - SWEETWATER RIVER									
Dutch Joe*	Wyo.	8700				--	--	--	--
Grannier Meadows	Wyo.	8800	2/1	24	4.5	9.7	8.2	9.6	13
Larson Creek	Wyo.	9000				--	--	--	--
South Pass	Wyo.	9040	2/1	22	5.5	10.6	8.8	9.4	13
NORTH PLATTE - LARAMIE RIVER									
Albany	Wyo.	9400	1/29	30	5.4	6.0	8.0	9.7	6
Brooklyn Lake	Wyo.	10200	1/31	41	11.3	8.6	12.8	13.3	17
Deadman Hill	Colo.	10200	2/5	24	5.7	6.1	5.0	7.0	11
Fox Park	Wyo.	9200	1/31	18	3.4	1.7	4.4	5.0	18
Hairpin Turn	Wyo.	9500	1/31	19	4.5	3.7	6.6	6.8	17
LaBonte	Wyo.	8450	1/26	19	3.8	3.4	4.6	4.4	6
Libby Lodge	Wyo.	8700	1/31	18	4.5	3.6	5.7	5.7	17
McIntyre	Colo.	9100				--	--	--	--
Pole Mountain #2*	Wyo.	8700	1/28	19	2.9	1.8	2.4	2.9	18
Roach	Colo.	9800	2/5	35	8.2	9.5	--	10.5	13
PLATTE - POLE MOUNTAIN									
Pole Mountain	Wyo.	8700	1/28	19	2.9	1.8	2.4	2.9	18

WYOMING SNOW SURVEYS, FEBRUARY 1, 1955

DRAINAGE BASIN and SNOW COURSE	STATE	Elev.	SNOW COVER MEASUREMENTS 1955 Date of Survey	Snow Depth (In.)	Water Content (In.)	Past Record Water Content (In.) 1954	1953	Aver.	Years of Record
NORTH PLATTE - NORTH LARAMIE MOUNTAINS									
Box Elder	Wyo.	9000			N.R.	3.1	4.1	2.7	5
LaBonte	Wyo.	8450	1/26	19	3.8	3.4	4.6	4.4	6
MISSOURI - CHEYENNE RIVER									
Upper Spearfish	S. Dak.	6500	1/27	25	4.6	4.0	4.9	4.5	11

VALLEY PRECIPITATION
In Percent of Normal

Basin	Jan.	Febr.	Mar.	Apr.
Wind River	25%			
Shoshone River	15%			
Big Horn River	25%			
Powder River	60%			
North Platte	100%			
Laramie River	90%			

STATUS OF RESERVOIR STORAGE
Wyoming and South Dakota
February 1, 1955

BASIN and STREAM	RESERVOIR	USABLE CAPACITY 1000s AF	Active Storage -1000s Acre Feet				
			1955	1954	1953	1952	10 Yr.Avg 1943-52*
Snake River	Jackson	847.0	416.8	342	388	690	534.7
North Platte	Seminoe*	957.0	273.4	196.6	620.0	681.4	447.1
North Platte	Pathfinder*	1011.0	420.1	808.9	739.2	699.2	446.6
North Platte	Alcova**	190.5	171.4	166.9	155.1	158.8	95.4
North Platte	Alcova**	24.5	5.4	0.9	--	--	--
North Platte	Guernsey	39.8	11.8	36.9	41.8	24.7	36.3
North Platte	Southerland	185.0	42.6	48.6	63.0	58.8	50.7
North Platte	Kingsley	1995.0	1120.8	1485.0	1699.0	1885.0	1275.5
North Platte	Lake Alice & Minatare	68.0	14.4	--	--	--	--
Kansas Basin	Box Butte	31.6	N.R.	14.6	17.1	24.3	19.2
Kansas Basin	Bonny	39.9	37.4	37.8	26.0	30.1	18.5
Kansas Basin	Swanson Lake	116.1	29.3	9.7	--	--	--
Kansas Basin	Enders	36.0	42.5	28.9	23.6	36.7	20.0
Kansas Basin	Harry Sturnk	33.9	30.9	29.1	33.5	32.1	23.6
Kansas Basin	Harlan County	252.9	164.0	30.3	--	--	--
Kansas Basin	Cedar Bluff	176.8	95.0	101.2	113.6	173.8	173.8
Laramie River	Wheatland	95.0	1.2	7.8	24.0	52.0	35.4
Belle Fourche	Belle Fourche	185.2	51.5	97.1	43.5	72.0	106.3
Shoshone River	Buffalo Bill	439.8	145.8	156.7	158.4	266.4	302.5
Wind River	Boysen	758.0	339.6	337.7	580.2	92.4	92.4
Wind River	Pilot Butte	31.6	9.2	8.9	9.0	6.5	12.5
Wind River	Bull Lake	152.0	66.3	84.9	66.9	74.7	69.5
Cheyenne River	Angostura	92.0	31.9	30.0	43.2	52.0	52.0
Cheyenne River	Deerfield	15.1	10.2	14.5	13.1	14.6	12.8
Cheyenne River	Keyhole	190.3	9.0	8.6	8.2	--	--
Grand River	Shadehill	84.0	76.1	80.5	76.2	--	--
Green River	Big Sandy	38.3	8.9	3.3	--	--	--

* Seminoe, January 1943, August 1953, Useable Capacity 993,200 Acre Feet.
* Pathfinder, January 1943, August 1953, Useable Capacity 1,040,500 Acre Feet.
** Alcova, downstream from Seminoe and Pathfinder and containing 166,000 Acre Feet of inactive storage that is unavailable to the Kendrick Project.
***Some for less.

The data included in this report were obtained by the Soil Conservation Service in cooperation with the agencies named below:

STATE

State Engineer of Wyoming

FEDERAL

U. S. Department of Agriculture
Forest Service

U. S. Department of Commerce
Weather Bureau

U. S. Department of the Interior
Bureau of Reclamation
National Park Service
Geological Survey

PRIVATE

Wheatland Irrigation District

Federal - State - Private

COOPERATIVE SNOW SURVEYS

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Furnishes the basic data necessary for forecasting water supply for irrigation, domestic and municipal water supply, hydro-electric power generation, navigation, mining and industry

"WATER IS THE WEST'S GREATEST RESOURCE"